



# Computer Weekly

Thursday, August 25, 1983

## Ferranti in digital voice debut

by Kevin Cahill  
FERRANTI will shortly launch a major digital voice management system as part of an ambitious strategy to give its Office Systems Division a £200 million turnover by 1987.

The voice management system, which is based on Ferranti's own computer technology, will be demonstrated for the first time at the Telecoms Fair in Brighton next month.

Details of the product, which is aimed at a market estimated to be worth £330 million in 1987, are scarce, but the product will not need a special PARX as does the IBM voice management system.

It is also expected to cost substantially less than the IBM

products. Some sources are talking about a price about one-third to half that of the IBM machine which has an entry level price of £125,000.

The goal for the Office Systems Division is set by divisional director Frank Fensome, who notes that growth last year, and in the current year, is running at about 33% per annum.

"We aim to double the division's turnover every three years," he says.

This year demand for the company's PT7 IBM and ICL compatible terminal has run so far ahead of expectations that the division has opened a new 40,000 square foot production facility well ahead of plans.

The new facility has created 200 jobs this year in an area where unemployment is close to 30%.

The Office Systems Division is based at Wythenshawe and about 50% of the division's sales come from bespoke work based on the Argus. A project involving more than 50 minicomputers for the Thetford Nuclear power station is under way at Wythenshawe, alongside several other major projects for oilfields and conventional power stations.

Over the past two years the Wythenshawe division has developed its basic telecommunications expertise into a successful telex manager system based on the FT80 terminal and Argus computer.

Meanwhile a West German involved in the same incident has been put on trial in the US and could be sent to prison for 50 years and fined up to \$50,000.

Gunter Nachtrab, 42, was



SMITH... In the UK looking for distributors.

## Hardware smuggler faces jail

by George Black

TWO Austrian look as if they will escape prosecution on charges of illegally exporting high technology to the Eastern bloc, after unsuccessful attempts by the US government to have them extradited.

America is reported to be angry with the Austrian government for failing to respond either to its extradition requests or to bring the two to trial in their own country.

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April Nachtrab, another West German, Klaus Taller, and the two Austrians were indicted after a year-long investigation by Commerce Department officers.

Buehman said the Americans knew there was no agreement with either Austria or West Germany on extraditions in each case but he asked for an exception to be made in view of the gravity of the offense.

In West Germany Taller has been questioned and may be prosecuted.

Nachtrab was found guilty of shipping products of National Semiconductor, Hewlett-Packard, Motorola and Advanced

Micro Devices. The US commerce department had allowed the products to be exported in the belief that it would be used by the West German post office.

Recipients were said to be Ann Landau and her daughter Jeanette Wellens in Vienna, who are alleged to have passed the goods on to Hungary. They will be arrested if they visit the US.

Meanwhile in Switzerland seven people have been fined in a similar but unrelated case of illegal exports to the Eastern bloc. They included ex-employees of Favag, a subsidiary of the Swiss telecommunications company Haster in Neuchatel.

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FENSOME... 33% growth.

## Digital goes to consumers

From front page

Devices which can be attached to the public telephone network must be marked clearly with a red BABT approval sticker.

BABT associate director Barry Cartman said that if equipment went straight through the approvals process, it was quite quick. But if repeated modifications were needed, it could take months.

There is another difficulty for the BCD terminal. P&P Marketing and BCD both intend to market the device, and to avoid the worst effects of direct competition they have agreed not to compete on price. But a spokeswoman for the Office of Fair Trading, having learned of the arrangement from Computer Weekly, said: "The Retail Price Act 1976 makes it broadly unlawful for suppliers of goods to require their dealers and distributors not to sell goods for less than an indicated retail price."

Digital's president John Rowley said it would become a leading supplier of home and education software and has been gearing itself up for this role for some time.

The project will include signing up some mass merchandisers — presumably high street shops — as well as OEMs and independent software developers and vendors.

## Unions widen ban on Mercury shareholders

by Nuala Moran

ACTION against the privatisation of BT is being stepped up by the unions affected.

Members of the Post Office Engineering Workers Union (POEU) have widened their ban on Mercury shareholders to include Barclays Bank International.

The Society of Civil and Public Servants (SCPS) has instructed its members to black out essential for BT to draw up a shares prospectus for investors interested in buying a stake in BT.

The POEU pulled its members out of the three London offices of Barclays Bank International in the middle of last week.

Its action was launched three days earlier, when branches in London were issued with instructions to refuse to work on all telephone and data transmission equipment at buildings owned or occupied by Mercury shareholders BP, Cable and Wireless and Barclays. At first only Barclays head office and computer centre were affected.

Charles Shandland, managing director of BCCL Telemail, said: "We have not felt any effects of the POEU action." BP and Cable and Wireless also said that the action had not had any effect so far.

BT declined to discuss whether the POEU's action was having any

effect, but a spokesman said: "BT deplores any action which affects services to customers. We will be taking steps to ensure any disruption is minimised."

Brian Harper, a national organiser at the POEU, said: "We wouldn't know if the action is having any effect. BT management keeps a low profile over any faults occurring."

Harper was not able to say how many engineers were involved in the action.

Meanwhile members of SCPS have been told not to work on drawing up a new register of BT's fixed assets. This involves bring into the accounts fixed assets such as power plant in exchanges, repeater stations and radio stations not previously included.

BT instructed the financial staff involved in drawing together this information to complete it by September 9.

Beverley McGowan, SCPS assistant secretary for telecoms, said: "If we can prevent BT from getting this information, then the share prospectus won't be complete."

McGowan estimated that the action involved about 100 SCPS members in 61 telephone areas around the country.

With management, though they have been made an identical offer. The result of their negotiations was expected early this week. It is felt unlikely they would want to pursue a dispute independently.

Union officials, who were not ready to check the ballot paper — but have already voted in a very small majority.

About 2,000 customer engineers are negotiating separately. No agreement has yet been reached.

The unions say the merit payment is not an accurate reflection of employees' value to the company.

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board, a screen with 16 40-character lines, a 40- and 80-character colour printer four joysticks wide, a cassette drive and 16K of memory for user data, all in the A4-sized package. The screen can be split in two. There is also a built-in microphone, loudspeaker and modem, plus two ports for connecting external devices such as a bigger printer.

UK retailers are "very excited" by the new product, said international sales director Bob Groves.

The eight-bit Workslate, formerly codenamed Ultra, costs \$895 — and the company expects to sell 300,000 by the end of next year and over a million in 1985.

Workslate runs one application: a spreadsheet," said founder and president Alain Michela. "It can do any job which can be organised in rows and columns but not things like word processing. The businessman doesn't type his own letters but dictates them — and he can do that on this machine."

Michela said there was no competition for the product. "We have a marketing job to do to create a niche for Workslate," he said.

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# Local area net costs 'cut by half'

by Phillip Hunter

THE cost of local area networking has been dramatically reduced with new software and hardware just announced in the UK by distributor Data Translation. But the products developed in the US by Interdata still do not answer the problem of poor efficiency caused by the lack of low-priced broadband connections on networks.

The products, known collectively as Net/Plus, do answer the criticism that LANs are inflexible, by allowing a wide range of micros and other peripheral devices such as printers to be hooked to the network.

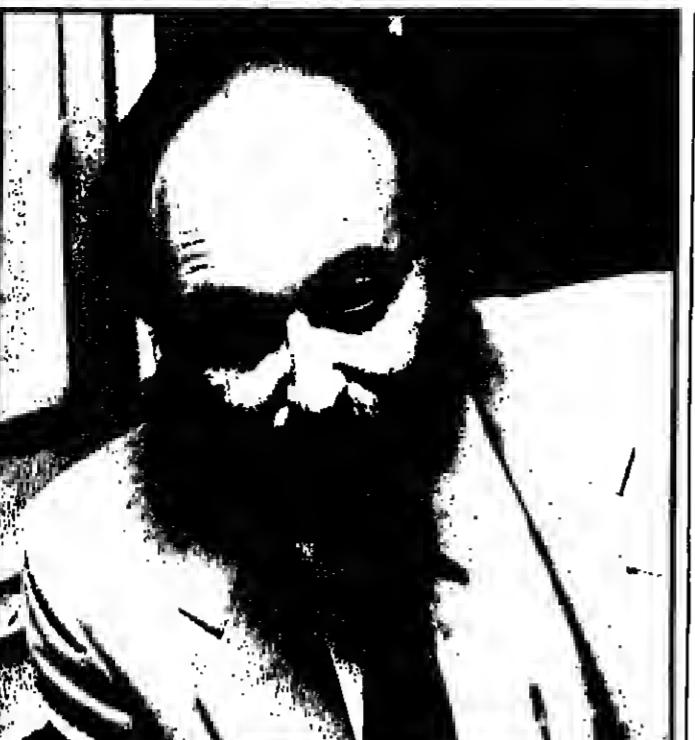
The products include the NT510 terminal server, which allows eight peripherals or micros with the RS232 connection to plug

into the standard IEEE Ethernet network for £2,673, which works out at less than £350 per device, or less than half the price of previous offerings.

Interdata president Paul Severino says that the network terminal server addresses several key issues for LAN users, including dealing with large numbers of users contending for access to a limited number of ports, switching users between different mainframes and personal computer networking.

Like other LANs, it simplifies wiring by using a single coaxial cable to connect all devices on the network. "This is likely to be the most compelling reason for users to want local area networks," says Severino.

But there are still critics who



SEVERINO... "Most compelling reason for users to want LANs".

## Bank offers free rent, rates at science park

by Caroline Burgess

ONE year free of rent and rates for two companies is on offer from Barclays Bank. It is part of a scheme to promote the Science Park at Warwick University, due to open in November.

The award scheme is open to any recently formed or new company which intends to develop a product involving new technology. Entrants are required to submit plans of their proposed product and projected sales and profits, with details of how they intend to achieve them.

"We are investing £1.1 million in the Science Park and this award scheme represents an additional commitment to the success of the project."

Barclays' investment in the Science Park is in the "incuba-

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## Big firms limit number of vendors

by Caroline Burgess  
PURCHASE of office automation equipment in large organisations is increasingly being limited to a few preferred vendors, as companies switch from dedicated word processors to personal computers.

Companies are becoming more aware of the need for a consistent development towards full office automation, so guidelines are being drawn up for the purchase of equipment. Limiting the number of vendors is seen as a way of ensuring compatibility with existing equipment to allow a natural development of new products emerge.

These are the main results of a major research report\* in the US by International Resource Development Inc.

The system of preferred vendors favours the largest companies, which can offer a full range of products and the service and support demanded by large organisations.

Not surprisingly, IBM seems to be emerging top of the list of preferred vendors. This is being linked to its recent acquisition of 15% of PABX-maker Rolm. According to IRD, IBM will be offering both LAN and PABX by 1984, thus completing its product range.

Ken Bosworth, president of IRD, said: "IBM saw a one-in-a-generation opportunity to lock out most of its competitors from the large organisation personal computer and office automation business, but in order to do so it needed a full product line, including PABX and LAN linkages."

Large organisations within the UK are reluctant to give details of their own guidelines. They do admit, however, that they are recommending that the purchase of office equipment should be limited to a few vendors.

The trend away from dedicated word processors is confirmed by a second report\* by Input. This report aims to highlight the difference between word processors and personal computers.

Keith Hocking, director of Input, said: "Word processors are becoming more like personal computers - the difference is very confusing."

The purchase of dedicated word processors is now thought to have been short sighted, but because of the money spent on installation it is unlikely they will be replaced very quickly.

\*CAs versus CWP's in the clerical workstation of the future, International Research Development Inc.

\*\*World's largest personal computers: Reselling the esoteric dilemma, Input Ltd, Alnwick House, 35 Piccadilly, London W1 9PB, £300.

## Iraq banks on Logica in £5m deal

by George Black  
LEADING British systems house Logica has won its biggest job yet - to provide £5 million worth of software for Iraq's nationalised commercial banks. And the contract has taken seven years to negotiate.

The job involves automating the Raifidain bank of Iraq almost from scratch.

Most of their work is still carried out manually.

A group of Logica staff leaves for the Middle East next week to start on the project, which will involve linking eight or nine Honeywell Level 6 machines to a DPSI mainframe in Baghdad on a distributed processing basis.

The project in negotiating the contract derive partly from the Iraq government's insistence on buying hardware and software separately, and partly from the wheels-within-wheels of the country's central procurement agency.

But Logica managing director Len Taylor commented: "Everything takes much longer to arrange in that area. Four to five years would have been quite normal and this has just happened to take a little longer. There were those who

thought we should give up on it - especially when the war with Iran broke out. But in our type of business you have to pursue everything, including a lot of contracts which don't look particularly promising. If only a third of them materialise, you are doing well."

The task, which includes the retraining of dozens of the bank's staff, is scheduled for completion in 1986 with phase one to be finished after two years. But Taylor expects some Logica people could be called on to stay longer to tidy up.

The hardware is being supplied by the French Honeywell-Bull; the French government has just signed a massive loan to Iraq. Front office terminals will be provided by Olivetti. Logica has done a number of jobs in Iraq before and believes the government has a good paying record, even if it may be presently under strain which could cause delays.

Taylor did not think there would be any danger to staff in the project from the war, but said if there appeared to be a risk of it spreading into the area of the project staff could be evacuated quickly.

## Government gives £2.5m for aids in teaching disabled

by Caroline Burgess

THE government is to spend £2.5 million on computerised teaching aids for 700 special schools for the disabled. The move was announced by Kenneth Baker, Minister for Industry and Information Technology, to the British Association for the Advancement of Science.

He added: "I am quite certain that some of the small-scale developments under way at present will sooner or later lead to successful new businesses."

Previous products developed under government funding include the Turtle, a toy linked to a microcomputer that responds to a child's commands and plays tunes, the Sound Bubble, which helps to teach co-ordination to disabled children, and the Concept Keyboard, a similar device for adults.

The new money will come from the Information Technology Awareness Scheme.

"It has been shown that computers can motivate children in a way that appears to be a risk of it spreading into the area of the project staff could be evacuated quickly.

Asked if the move was anticipated, Hewlett-Packard's own plans to link the commercial HP 3000 and the technical HP 1000 computers as part of its internal compatibility programme, a spokeswoman for the group replied: "It is more to do with our own organisation."

These schools in Scotland have

already been established as resource centres to evaluate new equipment. These facilities will now be extended. The £2.5 million will be used to buy hardware and software for the schools.

Baker said the government already sponsored the development of microtechnology for the disabled.

The advantages for both the disabled and British industry were emphasised by Baker: "Today's developments for the disabled may be tomorrow's mass market products. Many companies have been afraid to take the risk in the less

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SKAR... intends to expand the UK team.

## Norsk doubles profits as mini leaders suffer a slowdown

If the minicomputer market is dying out, no one has told the Norwegian mini-local company Norsk Data comes in with a record 100% profit rise for the half-year.

Based on rising sales in both the 16-bit and 32-bit areas, Norsk has clocked up a pre-tax profit for the half-year of 24.7 million kroner (£2.2 million) from 12.4 million kroner (£1.1 million) for the half-year ended June 30, 1982.

The 16-bit Norsk 100, substantially aided by new software, has continued to make heavy sales gains, despite being in a market where leaders like DEC and Prime are encountering a big slowdown as top-end micros creep into the world of minis.

The Norwegians remain a growing force in Northern Europe, and the office systems software Nots, with user terminology in each European country's language, has increased Norsk's position in the integrated office field substantially, according to company chairman Rolf Skar.

Norsk has also grown its business substantially in the two other countries in which its shares are listed: Sweden and the US.

This links up with Skar's policy of developing both staff and financial links with the countries in which Norsk does business.

He has long viewed the UK as one of the best sources of software expertise and intends to expand further the team already formed here. The company's half-year sales showed a healthy 21% rise to 309.6 million kroner (£27.6 million) and orders were 42% ahead, with the total order backlog growing by 70 million kroner (£6.2 million).

Skar notes that the company usually makes its biggest profits in the second half and he forecasts that sales will grow even faster than in the first half.

Memcom claims to be a major specialist in the field of information management systems, and most of its staff work on contracts related to this aspect of the business, particularly systems using microfiche.

As an example of the company's expertise in the field it undertook, at a loss, the computerisation and "micrographification" of the personnel records of the Jordanian Army. The main contract was successfully completed over a year ago.

The development of the Ovonic will be undertaken by a UK subsidiary of Memcom, called Memcom Electronics UK. The parent company does not appear to have entered into any guarantees to the subsidiary.

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So far Memcom has completed only one contract, on which it lost money, but it is currently engaged on a substantial contract with the Abu Dhabi National Oil Company and is a sub-contractor to the Computer Sciences Corporation (CSC) of the US.

The three remaining contracts of significance are with various agencies of the Iraqi government

and probably represent the most exposed element of Memcom's business.

Iraq is deeply involved in its war with Iran, which has cost the country

900% up to \$9.2 million and profits of \$915,000.

## Rosy future for UK telecoms

TWO reports this week paint a glowing picture for the future of the telecommunications industry in the UK and in Europe.

The first report\* from City-based ICC Business Ratios says the prospects for Britain's telecommunications industry, already one of the most successful sectors in the country, look extremely promising on a number of fronts.

Slack output has had little or no effect on the growth in profitability of the best companies in the sector, says ICC, with more than half of the companies surveyed making a return on capital of over 20%.

The restraints placed on British Telecom by the government has had its impact on the major companies, though not noticeably so at the two biggest, Racal and Plessey, where overseas business has more than compensated for slower growth at home. Both companies have recorded sales growth of over 50% in the last years surveyed; 1981 and 1982.

Both have also maintained record returns on capital employed – in Plessey's case 24.6%, and in Racal 27%.

Return on capital is one measure of how well a company is doing, but profits and sales remain the stick and those who did not seek pastures new outside the UK show it in their figures.

Standard Telephones and Cables, the now partly privatised

state-owned company, has

shown a 14.8% return on capital

and a 20.2% profit rate.

After the two leaders Cable and

Wireless managed a respectable

annual sales growth of 13%, but

much of this company's promise is

still to come as it explores new

commercial ground now that it is

no longer a government-owned

entity.

Telecommunications

10th year ICC, 26 and

42 Banister St, London WC1

Logica Report 1983

Newton Street, London

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**PLATFORM**

Tannie Williams is president of Sydney Development Corporation.

Software start-up funds pose some special problems

**PROFILE**

# Driving GA safely into the commercial sector

FROM August 1 General Automation, the UK subsidiary of the US minicomputer company, found itself with a new man in the driving seat. It also found it was selling microcomputers to the commercial market — something of a volte face for an industrial mini company.

Mike Long is the man with the responsibility for seeing through these changes, which are aimed at steering GA away from its drum days of 1980 when the company reported a \$16.5 million loss on a turnover of \$125 million.

Subsequent share issues raised another \$4 million.

When dealing with sums of this magnitude, a large amount of time, effort and expense must be spent with stock exchanges and various regulatory agencies.

This is a great, but frustrating, learning experience.

Clearly we needed to find another method of raising funds if we were to expand our product line quickly.

That innovative method was found within existing Canadian government legislation, which permitted citizens to invest in real estate, movies and natural resources. These investments were permissible as deductions from income, thereby providing the investor with an investment that reduced his income tax.

Long is hiring eight salesmen to cope with the demand for Zebra. And he expects sales will receive a further boost later this year, when a Xenix-based version of Zebra is launched.

"Good salesmen are hard to come by, and they are expensive," he said. "I would dearly like to do everything through dealers, but I'm realistic enough to know that's not practical.

"However, I can't afford to have salesmen selling one-off systems to small users. And we're not in the Digital/DEC league. We farm out

applications to software houses," he explained.

GA is to offer some off-the-shelf packages in the next 12 months, but, said Long, "we really still want to shift boxes and leave the hairy stuff to software houses".

A sales manager was expected to start work that morning, but he



LONG... "GA has learned its lessons and got sorted out".

rang to say he wouldn't be taking the appointment. "I don't blame him really," Long remarked ruefully. "I have done that sort of thing myself."

Long joined GA six-and-a-half years ago as a salesman, and later became sales manager. Just before he spent 18 months trying

to get his own business off the ground, importing industrial micros from the US.

"There is a hell of a market out there but I was undercapitalised," he said. "I did have quite a bit of success, but it was too much work. Trying to run my own business didn't agree with me, so I decided to come back to the fold."

Before his go-it-alone phase, Long worked for several companies in the US including Westinghouse, Texas Instruments and Singer. He was brain-drained to America in 1963.

Now Long is expecting to put GA on a path to new prosperity with the help of the Zebra range.

"In 1968 GA was one of the seven dwarfs in the mini industry, but by the mid-1970s it had become all things to all men. The company did jobs because it liked doing them, not for profit," he said.

This muddled objective culminated in the \$16.5 million loss in 1980.

A three-year recovery plan was launched by a new US managing director, Len MacKenzie, in 1980. By the end of July 1983, GA was reporting only a small loss and had slashed its debts from \$30 million to less than \$10 million.

The UK subsidiary has always made a profit, though, and this is despite its dependence on the industrial marketplace.

"GA has gone through a bad patch," commented Long, "but it has learned its lessons and got sorted out."

"The company will double in size over the next two years," Long forecast, becoming firmly established in the commercial market place.

**DOWNTIME**

## How now, brown cow?

THIS story concerns cows, sex, pigs and supermarkets (but not necessarily in that order).

A US manufacturer has discovered that by sleeking a microchip into a cow, information on its wellbeing, identity and readiness for, *ohem*, making a bull's day, can be relayed to a microcomputer via the marvel of wireless telephony.

And there is more. The very same microchip (washed after use in the cow, it is to be hoped), can be applied to products in supermarkets, allowing automatic charging at the checkout and preventing shoplifting, as well as the far more pernicious curse of human checkout operators ringing up lower prices.

A further application for the chip is the electronic branding of pigs. It would appear that the end-user has involved solving distribution problems that we don't think have been tackled before in the software industry. Some of these efforts are highly innovative and personally exciting for our staff.

These thoughts have been concerned mostly with the importance of financial resources to the success of a software firm. It would be unfair to conclude, though, that this is the entire story.

Money is merely the structure supporting an organisation which must be truly creative in its product ideas, its development, its marketing and its administration.

Money is only the facilitator, which allows people to be creative. It is creative and dedicated people who build major companies and excellent products which make their mark on society.

Tannie Williams



Eric the pig checks his computerised naming. See first story.

practice of clipping tags to their ears or tails falls down (or more accurately off) when their loquacious piggy tails chew off the extremity in question.

Isn't science wonderful!

**Friendly persuasion**

SOMEHOW Computer Weekly has got itself on to the mailing list of a technology conscious book club. "Member friendly — that's what we strive to be", says its brochure. "We use computers, of course, to

give you best and quickest service, but it's PEOPLE who handle your letters and queries. It's the human touch we believe in."

Who wrote their brochure, I ask

— man or mouse?

— Chad

— Chad</p



## A plan to protect the pensions of jobhoppers

by Nuala Moran

IN THE computer industry 15% of people change jobs each year. And this, of course, is one of the attractions of the industry - that it is possible to move around and improve your job.

But there is one very significant drawback. People who change jobs often find they have pension assets frozen in the pension funds of former employers.

Now National Provident Institution (NPI), one of the country's leading pensions companies, has introduced a new scheme, Plan 32, to get round this problem.

Jack Fisher, marketing manager

of NPI, explained that the company had done a survey of the job market to find which areas had the highest staff turnover.

"We found that in the computer industry 15% of people change job each year," he said.

Plan 32 is intended to protect those changing jobs during their working life from the prospect of a reduced standard of living in retirement. What happens is that instead of a paid-up benefit staying in a company pension scheme, it is transferred to NPI and invested in an individual policy.

Any time someone changes jobs he or she can transfer money

from the company scheme to the NPI scheme.

This is much more satisfactory than leaving money frozen in the pension scheme of a previous employer, because it can continue to earn interest.

Fisher said that NPI had not done a full survey, but his impression was that the majority of computer companies had pension schemes because it was seen as a way of keeping valued staff.

But he emphasised that Plan 32 was not intended to encourage fly-by-nights. "People who have been in a job for, say, five years are more affected by moving jobs

## Discovery of a solar system rewards team

LAST month's exciting discovery of what could prove to be another solar system was a well-earned reward for the team of hard-working programmers, analysts and operators at the Rutherford Appleton Laboratory in Berkshire.

The discovery was made by analysing a routine day's data from the Infrared Astronomical Satellite (IRAS) launched last February to make a map of the sky using the infra-red radiation invisible to the eye of conventional telescopes.

IRAS was poking its infra-red eye around the vicinity of Vega, one of the brightest stars in our heavens, and found a disc of dust stretching out from the star twice as far as our own solar system goes.

The presence of so much dust

suggests to astronomers that there could be bigger celestial objects around too. Such objects would not emit enough infra-red radiation to be detected by IRAS, as their surface area is less than that of all the dust particles combined. But astronomers believe there is no dust without rock - at least in this case.

This is good news for five of the 10 operators placed on contact with the IRAS project last February by KPG Computer Services. The satellite was due to expire in September when it should have run out of the helium needed to keep the telescope cool. But it now looks like staying in service until January, which means an extension of the contract.

The discovery was a surprise for

when it comes to pension rights than people who move frequently.

"Those who change jobs very

often are usually able to reclaim some part of the pension contributions they have made," he said.

The government is known to favour introducing schemes to allow people to move money from a pension scheme when they leave jobs. Plan 32 was made possible because of legislation introduced under Section 32 of the 1981 Finance Act, which allows an insurance company to accept a transfer of value from a pension scheme and invest it in an individual policy.

But he emphasised that Plan 32 was not intended to encourage fly-by-nights. "People who have been in a job for, say, five years are more affected by moving jobs

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he or she can transfer money

from the company scheme to the NPI scheme.

This is much more satisfactory than leaving money frozen in the pension scheme of a previous employer, because it can continue to earn interest.

# PRINTERS

Amid the euphoria surrounding the continuing price cuts on micros, one salient point is often missed – the processor and its software may be attractively priced, but a halfway-decent printer could set you back by two or three times the amount spent on the micro.

Although it is the computer that grabs the attention, without a printer it is virtually useless for business purposes. Despite increasing use of online systems in large data processing installations, demand for printers from small businesses has doubled in the last year.

Between 170,000 and 200,000 units were imported in 1982 and, if current trends continue, imports will be a record

400,000 in 1983. The UK had a trade deficit in printers of about £49 million for the first five months of this year.

There is a staggering diversity of printers on offer: from the bumble teletype, of which many are still in use, through daisywheels and line printers, to matrix devices, lasers and ion deposition printers capable of printing over 200,000 lines a minute of excellent quality – at a price.

Today's printers incorporate a high level of new technology and in-built intelligence, and this hitherto conservative branch of computing has become one of the most innovative and competitive. Innovation, and rivalry between manufacturers, is bound to lead to cheaper, better products.

## Technology brings more options for the business user

**Greater speed, lower prices and high quality will intensify competition in the printer market, says Della Bradshaw in this overview**

WHAT types of printer are people going to buy for their computers? Will dot matrix printers and daisywheels continue to dominate or will users switch to lasers and thermal printers?

The experts cannot agree on an answer. One recent report predicts that the dot matrix printer will be in greatest demand, because it is cheap.

Another report published at almost exactly the same time says that laser printers at prices under £8,000 will be all the rage in a few years' time, though no one has yet produced one at that price.

Whichever is certain is that, as the number of computers increases, the number of printers will increase as well by up to 25% a year for the next three years or more, with the prospect of sales tripling within a decade.

The main growth in computer sales will be at the lower end of the market – in desk top and home computers – so dot matrix printers will remain popular. It is likely that nearly 300,000 will be

sold in the UK in 1986 – nearly three times as many as in 1981.

Dot matrix printers have minute needles in the print head, which are fired at the ribbon to form dots. The more dots, the higher quality the print. Cheap printers have a matrix of five by seven dots. They are legible, but there are problems with letters such as p and q, where the descender is not always clear. The best matrix made is 9 by 14 but a matrix 24 dots in depth should be on the market by the end of the year, and at least one firm says it will make a matrix 36 dots deep.

To improve print quality some printers make two or more passes over the same line, so that the gaps between the dots are filled in with more dots. These printers are often referred to as near-letter-quality printers. They should not be confused with the bi-directional printers, which are printers that can print from either edge of the page.

The biggest problem with dot matrix printers is noise. Some companies make special efforts to produce quieter machines. Agfa's Series A DP-9500A and DP-9501A printers are claimed to operate at less than 55 decibels.

Speed and reliability are most important. Typical speeds for dot matrix printers are 200 to 300 characters per second (cps), compared with 30 to 40 with daisywheel printers. If the printer can produce both DP and near-letter-quality printing, the latter will be slower – probably about 100 cps.

Big names in dot matrix printers are Diablo, Newbury Data, and Zenith Data Systems – a US company, which recently decided to manufacture in Ireland for the European market. But Japanese companies, including Epsom, Brother, Iki and Mitau, dominate the lower end of the market.

Mitau first demonstrated its dot matrix printers at Compec last year. The MC2100 and MC4200 offer pin-addressable graphics, 167 character set and touch-sensitive control keys. As for reliability, Mitau guarantees that its nine-pin head will produce at least 100 million characters before it breaks down.

Daisywheel printers are meeting stiff competition from the better dot matrix printers. But daisywheels are best for top-quality documents as required by solicitors, for example.

The daisywheel was designed to replace the golfball printer, which is too slow for most computer applications. The letters are on the ends of spokes attached to a central hub. The spoke is flexible and, when it is hit, it makes an impression like a typewriter key. First made of metal they are now usually plastic, the characters themselves being in a harder plastic than the spokes, for durability.

Like a golf ball, the daisywheel must be changed when a change of characters is needed, whereas for dot matrix printers only some extra RAM is needed to program in a new font or range of characters. Usually there are only 96 characters on a daisywheel.

Daisywheel printers are fast enough for word processors but these account for only about 10% of all uses of printers, and it is unlikely that the daisywheel will be able to stay off competition from the dot matrix printer.

The main question at the lower end of the market is: Are users prepared to pay more for a daisywheel, and sacrifice speed, for the sake of higher quality?

Diablo, Quine and NBC lead the daisywheel market, with Ricoh and typewriter manufacturers, such as Olivetti, Olympia, Triumph Adler, Smith Corona and Brother, strongly competing.

Brother is a good example of a typewriter company that has gone into printers. It has been exporting daisywheel printers to the UK for less than a year, but is already selling 500 a month. UK sales director Jim Kitton claimed that by next year Brother would have the biggest printer marketing operation in the UK.

sing and small data processing user are becoming available from several manufacturers.

It is unlikely that lasers will ever compete directly with daisywheel and matrix printers on a cost per unit basis, but high resolution, a 2,000 line-a-minute capability, and a relatively low price will tempt many users.

There is a limited demand for high-volume lasers. It is not worth investing £200,000 or more on large-scale laser equipment unless at least three million pages a month are produced. But economy lasers aimed at the word process-



The ubiquitous daisywheel – top quality but slow.



Xerox's laser printer – high quality and fast.

## PRINTERS

# Daisywheels get the needle from high resolution matrix

Just as William Caxton's printing press presented a serious challenge to scribes of his day, multi-media printers pose a threat to established printing technologies in the 1980s, says David Casey

WITH products as diverse as golfball typewriters and electronic typesetters, the British printer market appears to lack a coherent identity. Suppliers maintain that there is no single marker for output devices, as a 7x5 dot matrix poses little threat to a manufacturer of 2,000 line per minute chain printers. This observation may have been true in the past, but these complementary product groups now represent divergent technologies in a convergent marketplace.

When data processing was an activity remote from the executive and his or her secretary, the familiar green listing paper with its tractor feed edging was accepted as the only method of generating information in hard copy. If the data was a component of a text-based report, columns of figures had to be copied laboriously on to a typesetter.

Real Time Printers of Camberley is a Sanders distributor that has developed its own software routines to digitise typefaces: the early needle matrix printers had met the same resistance as the Spintwriter and daisywheels – a limited selection of typefaces.

Real Time's managing director Mike Johnson outlined one benefit that has come from in-house digitisation. "Although the manufacturers claim 390 cps, we have been able to develop a 500 cps font. Working with a pitch of 20 characters to the inch, the output is built up from six of the seven needles in the head."

Typographic quality at the 500 cps level is minimal, with descenders (lower case j, p and y, for example) taking a single row of dots. Conceding that this face has limited applications, Johnson added that there is a higher quality

dot-matrix printer as a set of fixed height characters in a ROM, an identifying symbol must be embedded in the output file and sent down line from the front-end computer whenever changes are to be made in the character set. Other parameters must be communicated to the printer. Apart from the most basic drafting applications, where line length and typing pitch are immaterial, the output stream must contain sufficient coding to define layout features such as margins, tabs, underscores and emboldening.

Accepting that there are computers that cannot handle meaningful escape character sequences, Sanders developed a readable command language to drive the S700. All the symbols in the instruction set are based on mnemonics, followed by numerical parameters where required. These codes can be output as hard copy to retain an accurate description of the instructions within a particular file.

The manufacturer has also retained its escape sequence language, which appeared on the original Media 12/7 machine, the forerunner of the S700. All the symbols in the instruction set are indicated by an escape and an Ascii character – a easier instruction for a computer to generate, but not so logical for the operator to decipher.

Depending on the software available in the computer driving it, a needle matrix can act as an intelligent device or a slow printer. The machine's internal logic is almost a necessity for handling proportional spacing, or when two different point sizes and types of character set are to be run into a single line.

Switching into fill mode on the Sanders S700 will ignore the carriage return and line feed signals within an incoming data file. The system calculates the character fitting and justification (creating a flush right hand margin) for each line in turn. A specific code is required at the end of every paragraph to break the logic and force a carriage return where one is required.

The business systems market is perhaps the greatest stimulus to the development of multi-media devices.

Apart from cost, letter-quality devices are inherently slow and therefore unsuitable for printing drafts of material for correction before final output. Typical daisywheel printer speeds are between 25 and 50 characters per second (cps) – twice the speed of the most sturdy golfball printer, but a soul's pace compared with a line printer.

Generating their output from bidirectional passes of the printing head, the Sanders machines run at either 33 or 66 cm a second. They have to maintain their precision despite stopping, reversing and accelerating back to full speed in a line buffer zone.

Johnson described some of the technical problems that the designers have had to overcome. "There has been extensive research into the drive circuits for moving the head across the paper and fixing its vertical position. The needles are controlled individually – their firing can be delayed or advanced to make sure they all strike at the same time even if they are not all perfectly in alignment within the head."

Driving the printing head on a dot matrix is far more difficult than with a conventional dot matrix or daisywheel. It takes only a single command, for example, to select the correct position for the spinning print wheel. No signal is needed to choose the typeface or typestyle – two parameters that have to be specified when handling a system, such as the Sanders machine.

Driving the S700 as a graphics device requires a front end that can generate a faster image of the illustration to be plotted. The signal is batched out six scan lines at a time, the image being made up from a 64 character graphics set in one of a dozen different resolutions.

The fact that needle matrix printers are about 25% more expensive than a top-quality daisywheel printer is proving no obstacle to sales. As demand from business systems vendors increases unit costs will fall to the point where these multi-media devices will present a serious challenge to established technologies in the computer printer market.



Caxton demonstrates his press to King Edward IV and his queen.

## Two dates to remember



The importance of software in the computer market place, as part of a computer package that actually brings the system alive and meets the customer's applications has never been greater – that's why you should make a diary date now to miss two very important events:

**NOV 15-18 '83**  
**Software Village**  
at  
**COMPEC '83**

1: First is the Software Village at Compec '83 which is greatly expanded on previous years and will be an integral part of the Show in the West Hall section of the Grand Hall Olympia, London. November 15 – 18 1983.

**JUNE 5-7 '84**  
**software**  
**'84**

2: The second is the recently announced new Software '84 exhibition and conference. A show devoted entirely to the subject of business and professional software at Earls Court, London, June 5 – 7 1984.

Both shows are organised by Reed Exhibitions, the country's largest business exhibition organisers, and sponsored by Computer Weekly and Software in association with Systems International, Frazer-Nash Computing, Micro Business and Computer Talk.

For more information contact the Exhibition Manager Compec '83 or Software '84, Reed Exhibitions, Survey House, 1 Throwley Way, Sutton, Surrey SM1 4QQ. Telephone: 01-643-0040

The quality of laser printing will ensure a growing market for this high tech item. And the price should drop dramatically, says David Casey

# Lasers can make light work of that DP output

WITHIN a single generation "laser" has become an everyday word in the English language. The emission of a parallel beam of light from a tube of gas has had dramatic effects on many branches of technology. Medical applications have been highlighted — the energy carried in a filament of monochromatic light may, for example, be used to weld the most delicate of human tissues.

In printing, the energy-carrying potential of a laser is less important than its ability to expose high definition patterns on a sensitized surface. The cross-sectional area of the light beam can be controlled to fine tolerances, to give very high resolution.

A British printing industry manufacturer, Monotype International, was the first to tap the potential of laser beam technology in typesetting with its Lasercomp in the 1970s. In this machine and its successors, the laser beam is modulated from a digital signal, while it scans across a photographic film to build up an image. Running at up to 2,000 scan lines per inch, laser setters are still expensive output devices suited only to commercial printing.

The principles of laser setting have more direct applications in the computer industry when combined with photocopier technology. In a conventional photocopier system, light reflected from a source document de-sensitizes a charged drum. Toning powder — analogous to printer's ink — adheres to the parts of the drum where the image is to be created, and this is transferred to a sheet of plain paper.

A family of output devices is emerging in which a photocopier drum is discharged with a modulated laser beam. The principle of laser composition is simple: a beam of light from a low-power laser is deflected uniformly over

the photosensitive surface. Whenever it strikes, a small area is discharged, and a segment of the image is set.

The computer supporting the scanner controls the output signals from digital typefaces held in memory, arranging the data so that each line can be fed in sequence to the modulator. The modulator is an electronic switch: rather than close off the laser gun whenever there is no pulse required on the copier drum, an electronic circuit deflects the beam away from its direct path.

For all the simplicity of its concept the laser copier is a highly sophisticated piece of equipment. Characters to be output are sliced into horizontal segments equal in thickness to the laser beam itself. To build up an image 1 inch high, a laser copier might make 600 scans across the film.

Xerox is one of the pioneers of laser-copying — its 9700 machine has a high-volume system providing a graphics-quality output from mainframes and minicomputer front-ends. There are now more than 20 of these machines in the UK; at least half of them in computer bureau operations. Siemens of West Germany and ICL market another high-capacity laser system, again as an alternative to line printers on their larger computers.

With a capital cost in excess of £100,000, the early laser copiers posed no serious threat to established output devices in data processing and word processing.

Accepting that there is a finite demand for high-volume laser printers, the manufacturers have been developing economy models better suited to the business systems market. Xerox, for example, has produced a range of these machines below the 9700, with the 2700 aimed directly at the word processor and small data processor user.

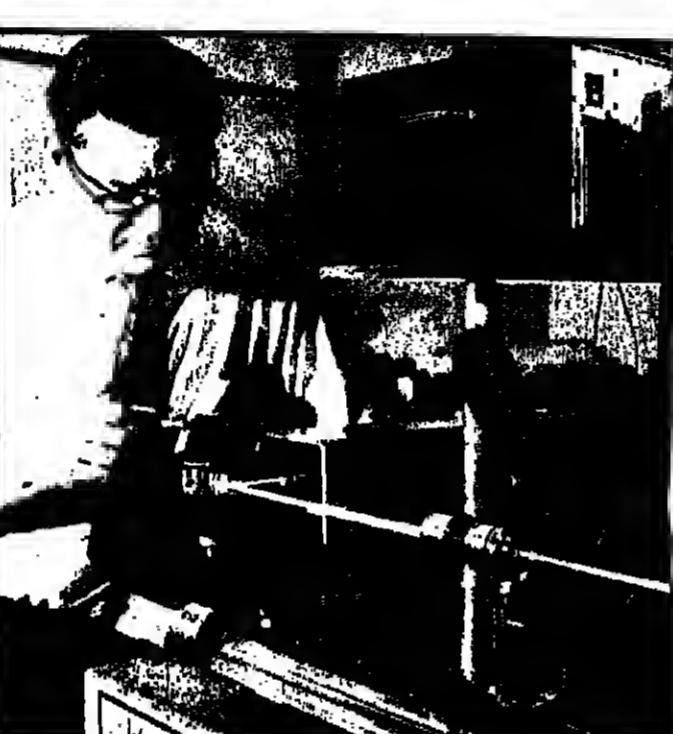
Other photocopier suppliers, including Canon, have made available their technology to OEM manufacturers requiring a print engine for laser copier development. The Japanese Matsushita machine (taken as a conventional copier by suppliers such as Panasonic, Olympia and Roneo), for example, is the base for the Lombard L30, a British laser system launched recently. Developed by Laser Imaging Systems, the L30 was engineered to the production stage by Lombard Services, which now markets the laser copier in the UK.

In the Lombard machine, the photocopying light, lens and glass plates are removed and replaced by the laser tube and its control system. With a stationary laser, a moving deflector is required to scan the beam over the full width of the drum: to handle an A3 sheet, the image must remain constant over a length of almost 12 in. A rotating polygon in the path of the beam reflects the light along one line at a time. In the interval between sweeps, the mechanism has advanced the sensitized surface a distance equal to the thickness of the beam.

The laser printer is mechanically a simple machine, but its effectiveness is determined by the quality of the spinning polygon. Lombard accepts that machining the polygon to the required degree of accuracy was the major obstacle in the development of the L30. It was essential that the facets were square to the shaft and relative to each other.

The monochromatic 5 milliwatt helium-neon laser beam has a cross-section of approximately 0.04 in (1 mm) when it is generated, so that it must undergo further focussing before it can be brought down to a pinpoint about one twenty-fifth of that size. This resolution of 600 lines per inch is double that of comparable copier-based machines, and has necessitated the development of a high-resolution 'toner'. Geatemer has produced a new non-toxic drum coating for the L30, which is more sensitive to the wavelength of the laser beam. It replaces the selenium surface used in conventional photocopiers.

For the laser printer to operate



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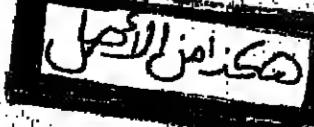
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COMPEC WALES '84

THE MAJOR COMPUTER EXHIBITION IN THE HEART OF INDUSTRIAL WALES  
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THE production of high quality printed material has for a long time been the preserve of the UK's traditional printing industry. But since the arrival of the laser printer, third party printing bureaux have grown up around the country offering customers not only good quality results, but also flexibility and fast turnaround times at a relatively low cost.

Companies with computer systems can fill many of their requirements, particularly for internal documents, with line printers. There are few which can afford to spend more than £100,000 on a printer that will be used occasionally to produce documents for customer consumption, such as manuals, price lists and catalogues.

This is where printing bureaux that have invested in laser systems come into their own.

Unlike traditional printing firms, which make up individual plates for every page, they can produce small quantities of documents with a large number of pages at low-cost.

They can also "publish on demand", saving companies the cost

This is a growth market. Lasers are getting cheaper and more accessible.

of having large numbers of documents printed in one print run, only to find that data has become obsolete, the documents useless and that another set of plates has to be made up in the printer before an up-to-date version of the document can be produced — again in large numbers if economies of scale are to be made.

Bye reckons that the bureau's printer is in operation for about 40 hours a week, churning out towards 300,000 sides of printed material for its customers, many of whom end up using its services through printing brokers.

He added: "On a mail shot we could do as few as 50 copies — the biggest job we've done so far was one million sides."

The cost of using the bureau, obviously dependent on the number of sides to be printed, is an average of about 3p per side.

RHM Computing, which got its Lasertron bureau service underway last March, having bought a second Xerox 9700 to add to the one used for its parent organisation's requirements, is about to launch a new service for its customers.

Besides printing text from computer tapes it will be able to digitise art-work, mix it with text and print it using the 9700 and a Xerox scanner machine which is dedicated to digitising graphics.

Wormald said: "We compete with offset litho and letterpress printers and copy bureaux, although if the information is on magnetic media rather than paper it can be edited very easily."

Lasertron's 9700s are linked to RHM Computing's two IBM mainframes, which form part of the company's DP bureau service.

Like many of its competitors, Thorn EMI uses a Xerox 9700 laser printer and also has mainframe computer, at Thorn's Honeywell DPS 870, to handle data processing. Originally set up to service Thorn EMI's internal requirements, the group's DP division now fills half its printing time with work from outside companies.

The 9700 runs off tapes generated from a wide range of customised mainframe and minicomputer. Only the output from microcomputers and very small minis, which cannot generate standard tapes, are excluded from what can be printed.

Applications of Lasertron's printer include producing manuals, self-use guides, technical literature, price lists, management reports and short-run books. Wormald suggested that 5p

# Bureaux with lasers are taking the printing strain

The low cost, flexibility and speed of laser printing have enabled third party bureaux to spring up nationwide... Sarah Underwood finds how they operate

page was the average cost of printing.

He said: "The market we've gone for successfully is not for glossy brochures, but in areas which have not been in print before because they were too difficult in terms of quantity or uncertainty of data; also those areas which had been using traditional printing, even though it was being done from computer output."

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Another company that has entered bureau printing is Comshare, traditionally known as a time sharing DP bureau and more recently as a supplier of IBM software.

With a staff of 20 and over 100 customers, it now has two Xerox 9700s with a capacity of up to one million sides of printing a week.

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With a staff of 20 and over 100 customers

# The struggle for sales gets tough as imports from Far East rise

Over 80 per cent of printers sold in the UK now come from abroad, reports John Aczel

**It is expected that prices will fall further, particularly for daisywheel printers. The quality of these is being improved, but their prices are coming down rapidly, due to strong competition from many Japanese firms**

A good way to estimate the market is to analyse import trends, as statistics for these are available from official sources. Over 80% of the print is sold in the UK probably comes from abroad. Printers made in the UK are mostly for specialised purposes.

During the first five months of 1983, over 140,000 printers were imported, which was double the number in the corresponding period in 1982. The statistics do not differentiate between different types of printer, so this figure includes so-called general as well as cheap ones used with games and home computers.

If the trend is maintained, imports during 1983 will reach a record figure of between 350,000 and 400,000, compared with 200,000 in 1982.

In terms of value, there has also been a marked increase in imports, though less than the rise in volume, because of severe price-cutting. Thus, from January to May 1983, imports were, at over £70 million, up 50% compared with the same period in 1982.

Japan now leads in printer sales. In the first five months of 1982, its sales to the UK reached a record of over 80,000 — nearly three times the figure for 1982. These imports were worth £18 million and repre-

sented about 55% of the market.

Imports from other Far Eastern countries, Hong Kong and Singapore, have also been increasing.

Deliveries from Hong Kong have gone up particularly fast, though the total is still relatively small.

The US has maintained a strong position in the market for printers — the number two in terms of volume, representing about 20% of imports by volume. But this share has shown little change over the past year.

By value, imports from the US were still ahead of those from Japan, because US products cost more. But if Japanese manufacturers keep sales rising at their present rate they will soon overtake

their American competitors in value terms.

Deliveries of printers from Europe have also been increasing, but they have been well behind Japan and the US. Sales by the Netherlands rose markedly to over 15,000 — about triple the figure for the previous year.

Sales by West Germany nearly doubled to over 4,000, but deliveries from France and Italy fell significantly.

Competition has been growing even fiercer, which has been reflected by the considerable fall in prices. Some of this fall has been due to technological improvements, but some manufacturers have been reducing their margins

significantly to maintain their sales at satisfactory levels.

During the first five months of 1983 the average price of an imported printer was about £500, compared with nearly £650 a year earlier. (This is not the price paid by the user, as it does not include wholesales and retail margins; nevertheless, the drop in prices has been substantial.)

This gap is unlikely to be reduced significantly and may grow during the coming months. For the whole of 1982 the deficit was £100 million. For the current year, there may be a deficit of over £150 million.

It is expected that prices will fall further, particularly for daisywheel printers. The quality of these is being improved, but their prices are coming down rapidly, due to strong competition from many Japanese firms

£49 million in the printer sector during the first five months of 1983, compared with £32 million in the same period in 1982, though value imports exceeded exports by nearly 100,000 units.

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During the first five months of 1983 the average price of an imported printer was about £500, compared with nearly £650 a year earlier. (This is not the price paid by the user, as it does not include wholesales and retail margins; nevertheless, the drop in prices has been substantial.)

This gap is unlikely to be reduced significantly and may grow during the coming months. For the whole of 1982 the deficit was £100 million. For the current year, there may be a deficit of over £150 million.

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A fast rate of expansion during the next few years will be accompanied by tough competition.



## PRODUCTS

Transfer of data at two megabytes a second

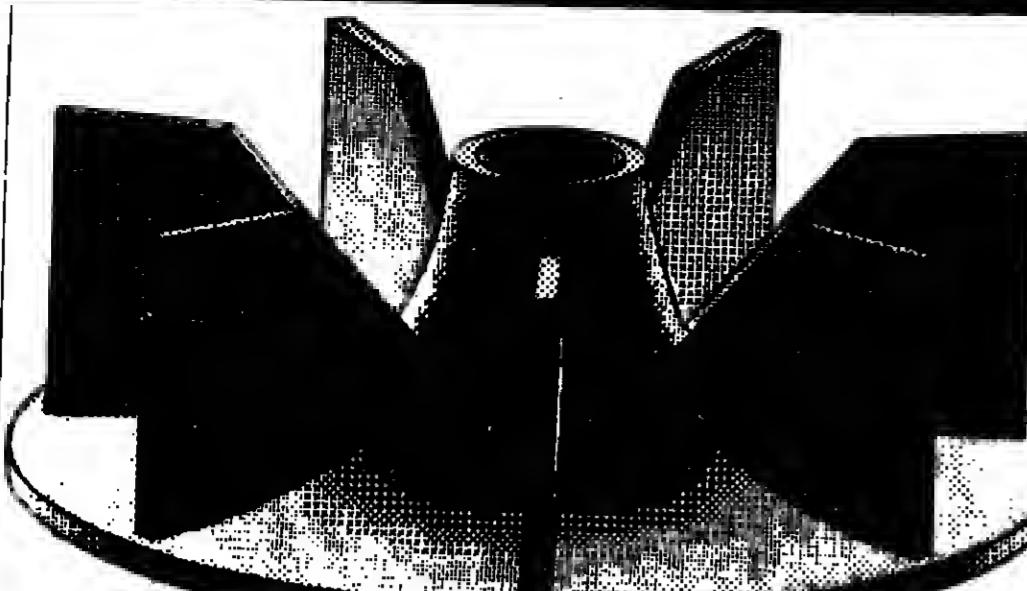
XYLOGICS International describes its new Model 472 as "a high throughput tape controller for streaming and start/stop half inch tape drives which offers optimised operating efficiency and performance for IEEE-796 Multibus systems."

The Model 472 resides in a single height Multibus printed circuit board. The controller addresses up to 16 Mbytes of memory and controls up to eight tape drives running at speeds from 12.5 ips to 125 ips at densities of 800 bpi NRZI, 1600 bpi PE, 3200 bpi PE or 6250 bpi GCR. The tape controller transfers data at two megabytes a second.

The Model 472 peripheral controller uses channel control techniques for optimised performance in the multiprocessing environment of the IEEE 796 bus and 16/32 bit microprocessors such as the 8086, 68000, 68032 and Z8000. Commands are issued from an operating system by creating an I/O Parameter Block IOPB.

Multiple IOPBs may be linked together for optimum peripheral processor throughput.

Xylogics International (CW), 46-48 High St, Slough, Berks, SL1 1EN. Tel: (0753) 78921.



The Calma mass properties calculation system.

## CAD/CAM software package for mass properties calculation

CALMA has introduced a program for automatic calculation of mass properties into its DDM/3D software package for mechanical computer-aided design and manufacture.

The mass properties calculation system is an integral part of a package which is being developed to provide a comprehensive solid modelling design tool, and allows any completely surfaced design or enclosed volume to be analysed for its mass properties.

Values that can be calculated with the Calma system include surface area, volume, mass, centroid, mass moment with respect to model-space or centroid axes, and mass product with respect to model-space or centroid plane and optionally about a user-definable axis.

The software package is designed for ease of use by mechanical engineers, and works with any design that is completely enclosed by surfaces oriented to the solid side of the design.

As an option, the user can also specify a quality factor to indicate the degree of precision required in the answer.

Calma UK (CW), Beech House, London Road, Camberley, Surrey, GU15 3HR. Tel: (0276) 68231.

## Data retained during power blackouts

AN industrial microprocessor-based controller/data concentrator, able to accept up to 32 inputs from data collection terminals and retain data even through power blackouts, is available from Astron Warwick Electronics.

The controller, Series 53, is designed to communicate with and to control Astron Warwick's System 52 intelligent data collection terminals.

...in applications including staff attendance recording, flexible working hour systems and security systems as well as shop floor data collection.

The controller is contained in a dirt-and-weather-proof box.

Astron Warwick Electronics (CW), Perry Road, Stable Tye, Harlow, Essex CM18 7NE. Tel: (0279) 39987.

The new daisywheel printer from Geveke Electronics.

## Dynamic support of Lotus cache memory

POINT 4 Data Corporation has added dynamic management of its Lotus cache memory under Release 7.5 of the Irls operating system.

The Lotus cache memory is a solid state device which acts as a buffer between the CPU and disk device.

With a capacity of up to one megabyte per board, the Lotus

cache memory stores large amounts of frequently used data blocks. Access to these data occurs at electronic speeds via DMA transfer, eliminating seek and latency times.

Items which are known to have a high frequency of usage, such as certain program segments or data file indexes, may be statically allocated for storage in the cache by

the user. Now, with this enhancement to Iris, all other data not statically reserved may be dynamically allocated to the remaining Lotus cache memory automatically.

"Basically," said Larry Babo, product marketing manager, "the system will now be able to determine the best use of the Lotus cache memory. It will use the Lotus

as a true cache, taking full advantage of all available memory for a more cost effective higher throughput system. And it is a labour-saving device for the user. When he does not know his most frequently used files, he can not let the system do it."

Point 4 Data Corp (CW), 2569 McCabe Way, Irvine, California 92714. Tel: (714) 863 111.

The Apple 410 Plotter marks a new direction in graphics aids. Rather than relying on a computer's intelligence, this machine has its own ROM. It needs only a single command from the programmer before it is able to draw complex shapes.

The Plotter will come with a wide range of accessories including four types of pen in eight colours, transparencies for overhead projection and a choice of either A4 or A3 plotter paper.

The Apple Plotter operates with up to four pens at once.

Apple Computer (UK) (CW), Bassetlaw Way, Hemel Hempstead. Tel: (0442) 60244.

## A4-size computer launch

Continued from front page. So far the software includes diary, budgeting, telephone book and stock portfolio programs.

The tape drive is a stereo unit, so one channel is used for voice. This means the Workstation can operate as a telephone answering machine and dictating machine. The voice track is also used for software cassettes to give users spoken instructions on loading and running the software.

Workstation is also used for computer team events in the US, including the Super Bowl.

ZENITH Data Systems has introduced a 256 Kbyte dynamic RAM card, the Z205, for use with its Z100 series of desk-top microcomputers and other S-100 computers.

The memory card is a low-cost means of increasing the power of Zenith's Z100 system by providing greater capacity for larger programs.

The Z100 series provides 128 Kbyte RAM as standard and can be expanded to a total of 768 Kbyte user RAM. By adding the Z205 memory card to the standard system, comprehensive business programs can be handled such as accounting and stock control, without segmenting the programme.

Z205 cards can be included in a Z100 system at the time of purchase or added to the system later. The cards can be plugged into the S-100 board within the computer on the user's premises.

DATA TYPE has introduced a new version of the successful Florida Data OSP 130 matrix printer.

DATA TYPE has introduced a new version of the successful Florida Data OSP 130 matrix printer.

The OSP 130 version features single sheet feed, tractor paper feed, cut sheet feed, graphics capability with dot addressable graphics and a facility which permits down-line load of the user's own or specific character sets, for the standard price of £2,950.

The printer also has serial and parallel interfaces as standard and Diablo 1630 or 1650 printer software compatibility.

These features would have previously added nearly £1,000 to the price, says Data Type.

Using proprietary printthead technology the Florida Data OSP 130 offers a 600-chip print rate for draft or DP output and between 100 and 150 chips print rate for letter quality output.

Data Type (CW), Llantrish Industrial Park, Llantrish, Gwent, Wales, CF3 7JL. Tel: (0633) 71177.

New features for 600chps printer



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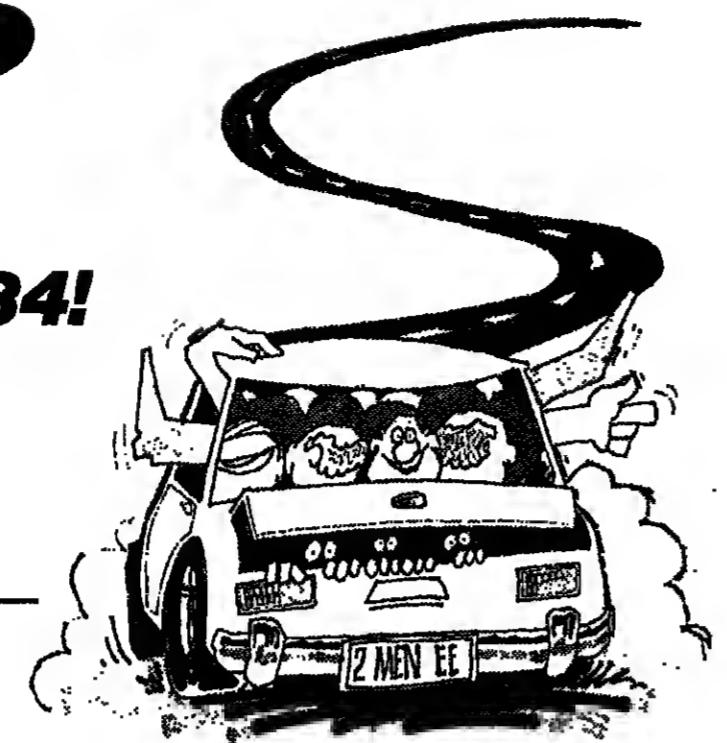
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# RECRUITMENT OPPORTUNITIES

## DEC SYSTEMS ANALYST

LONDON

Up to £15,000

Our clients, a well-respected service bureau, have a requirement for a systems analyst to join one of their project teams. Ideally, applicants should possess a minimum of three years' experience in analysis and design of Commodity accounting systems plus a programming background using Basic, although Stockmarket or other Financial applications experience will be considered. The successful candidate will work closely with other members of the team and will report directly to the Project Leader.

## SYSTEMS PROGRAMMER

SURREY

Up to £14,000

This well-known company have an urgent requirement for an I.B.M. Systems Programmer who has extensive experience of the operation and maintenance of M.V.S. operating systems on either 30XX or 43XX series hardware. The benefits associated with this position include flexitime working arrangements, staff shop and L.V.A.

## SENIOR ANALYST/PROGRAMMER

LONDON

Up to £11,000

An experienced Analyst/Programmer is sought by this company to work on the development of a new ledger software package. Applicants must have a minimum of four years' programming in Fortran and have previously worked on a variety of ledger applications. This is a newly created position and would ideally suit someone in their late 20s-early 30s. Benefits include a 32.5-hour working week.

## PROGRAMMER

LONDON

Up to £9,000

A major British company have a requirement for a young programmer to join their development team based in London. This represents an ideal opportunity for candidates of 'A' level or degree standard, and two years' programming experience in BASIC+2 using RMS on DEC equipment, who wish to develop their potential in a demanding environment.

# CONTRACTS:

## MUMPS Designer, Project Leader

LONDON

## DMS II Programmers

LONDON

## TSO/SPF CICS Analyst Programmer

LONDON

## RPG III Sys 38 Programmers

LONDON

## VAX BASIC +2 Programmers

LONDON

## IDMS Designer, Project Leader

LONDON

## COBOL DL1 DB/DC Programmers

LONDON

## COBOL, TOTAL, VSAM Analyst/Programmers

LONDON

## DOS/VSE COBOL, SHADOW Analyst/Programmer

LONDON

## RPG II Sys 34 SDA, MCV, Programmer

LONDON

## U1100 COBOL FMS, Datatrieve Analyst/Programmer

LONDON

## WICAT RM COBOL Analyst/Programmers

CITY

## PL1, DOS, ASSEMBLER Systems Support

KENT

## PL1, SHADOW Analyst/Programmer

LONDON

## PL1, CICS, IDMS CMS, TSO, Programmer

KENT

## BURROUGHS EPS, FC5 Modelling Programmers

LONDON

(5225)

datascene

Datascene International Limited  
Scipre House 169-173 Regent Street London W1R 7FB  
Telephone: 01-439 7871 Telex: 25851

56

Computing  
Services  
Association

## AUTOTYPE INTERNATIONAL LTD.

# Programmer/Analyst

Autotype International Limited, a company in the Norcross Group, is one of the world's leading manufacturers of coated paper and film for the graphic arts industry.

Due to recent expansion and the introduction of a System 4 computer, we are seeking to appoint a Programmer/Analyst to assist with the immediate computerisation of areas including invoicing and the order book, with further development planned for the future.

The ideal applicant will have a minimum of 2 years experience of programming/analytical work in an industrial environment, preferably using a System 4 computer. Close liaison with all company departments will be necessary and the ability to assimilate and accurately translate individual requirements is paramount. A flexible approach and willingness to assist with the daily operation of the computer system is also required.

In addition to a competitive salary of circa £8,000 per annum, other company benefits include a profit sharing scheme, contributory pension plan, subsidised canteen and a pleasant working environment.

Please write or telephone for an application form or send career details to: Personnel Department, Autotype International Limited, Grove Road, Wantage, Oxon, OX12 7BZ. Telephone 02357 66251 (24 hours).

NORCROS

## CONTRACT TECHNICAL AUTHORS

First class IBM Software Technical Authors needed for Long Term assignments (min one year) within London and the Home Counties.

The first essential qualification is at least one year's experience as a Technical Writer with in-depth knowledge of IBM operating systems, complex software and Assembler.

Successful applicants will have an IBM programming background plus the ability to communicate at all levels with both O.P. and Publishing staff.

For further details call 01-587 1831

## IBM JCL WRITERS

Immediate start. Five years' experience essential. TSO/SPF, MVS JES, CICS, ODATABASE, VLF, VSAM, VSPC advantageous.

Call 01-587 1440

FIVE

COMPUTER  
SERVICES LTDEmp  
AgyRESEARCH MACHINES  
MICROCOMPUTER SYSTEMS

RESEARCH MACHINES LTD, 111 St. George's Oxford OX1 2DW. Tel: (0865) 26116

# Business Systems Analyst

c. £11,500

Plessey Optoelectronics and Microwave Limited manufacture a range of Gallium Arsenide based products involving both assembly and process engineering technology. We have recently started to implement a business control system based on a commercially available integrated package and VAX 11/780 accessed remotely, and now seek to recruit a Systems Analyst whose initial responsibility will be to assist in the implementation of the control system. In particular the successful candidate will be expected to analyse the requirements of each key function, i.e., Sales Order Processing, Interface these requirements with the software package and other system users. Other projects currently taking place include electronic mail applications.

Reporting to the EDP Manager, this appointment offers an ideal opportunity for a professional, well motivated person to become involved in the implementation of a total control system. Whilst a good standard of education is expected, applicants should have several years experience of VDU based package implementation on main frame or mini computers. Knowledge of BASIC programming, Telecommunications and DEC computer operations is desirable.

The salary is negotiable around £11.5K, together with BUPA membership and a comprehensive relocation package as appropriate.

Please write or telephone quoting reference CW/P720: Mike Galsworthy, Personnel Resources Manager, Plessey Optoelectronics and Microwave Limited, Wood Burcote Way, Towcester, Northants NN12 7JS. Telephone: (0327) 51871.

PLESSEY

(5223)

# Sphinx could be the answer to the riddle of your future.

Sphinx is a rapidly growing, dynamic company, marketing professional microcomputer software.

As a direct result of our success to date and in order to help us maintain our exciting programme of expansion, we wish to receive applications from suitably qualified and experienced personnel to fill the undermentioned senior positions.

## UNIX specialist

This position is in the Consulting and Training Department of Sphinx. The Department is staffed by experts who provide highly specialised services in the areas of consultancy and training in the UNIX world.

Applicants should have an in-depth UNIX knowledge as well as a good understanding of the computer industry in general. You must also be articulate and a good communicator.

The position provides opportunity for some overseas travel.

## Software Sales

(reporting to Software Sales Manager).

The job demands that you sell Sphinx software products and services to Dealers and End Users.

Areas of responsibility will be clearly defined but within these you will be expected to show professional selling skills, initiative and enthusiasm.

Proven sales experience and an understanding of the software systems market are essential.

## Pre-sales Software Support

(reporting to Software Sales Manager).

The position requires you to support the sales team in selling software products to Dealers and End Users. It means, therefore, that the successful applicant will occupy an important position as a positive interface between the product technical staff and the commercial sales force.

An understanding of UNIX is essential and DEC experience would be an added advantage.

The structure of the company will allow career development in the direction of sales, consultancy or training.

## Business Software Support

Applicants should have a knowledge of business languages such as COBOL, DB2 and BASIC.

You will be part of a small team who specify, evaluate, document and support software under the UNIX operating system.

Experience with business applications under a multi-user operating system is essential.

Sphinx offers excellent career development prospects and the remuneration packages, plus car where appropriate, reflect the importance of the positions.

Interested applicants should submit their CV to:

Mrs. H. Smith,  
Sphinx Limited, 48-58 Moorbridge Road,  
Maidenhead, Berks, SL6 8PL.  
Tel (0628) 78343.

SPHINX

EDP SYSTEMS 01-637  
5796



# PUBLIC SECTOR APPOINTMENTS

POLYTECHNIC OF THE SOUTH BANK  
Borough Road, London SE1 0AA

## COMPUTER SERVICES DEPARTMENT

Three posts have been newly created in the Computer Services Department to enhance the Computer Users' Support Service provided for academic staff and students.

### USER SUPPORT MANAGER

Salary up to £13,363 per annum inclusive of London Allowance (currently under review). The User Support Manager will be responsible for a team of computing specialists providing a software advisory and development service offered at three separate locations. The person appointed will be a graduate, with at least five years' computing experience, including programming, and with experience of supervising computer personnel.

### COMPUTING ADVISOR [2 posts]

Salary up to £11,533 per annum inclusive of London Allowance (currently under review). The Computing Advisors will be responsible to the User Support Manager for the service of particular locations. The persons appointed will be graduates, with at least four years' computing experience, including a minimum of two years' programming. Experience of DEC equipment or working in a higher education environment would be an advantage.

### OPERATIONS CONTROLLER

Salary up to £10,268 per annum inclusive of London Allowance (currently under review). The Operations Controller will be responsible for the maintenance and development of a high level of hardware and operating efficiency for the Polytechnic's computing resources. The successful candidate should have at least three years' operations experience on DEC 10/VAX computers and be qualified to 'A' level standards as well as experience of setting and implementing standards for operations.

Application forms and further particulars of these posts are available from the Staffing Office. Tel. 01-928 8988, Ext. 2356.

Please remember to quote the relevant job reference. Closing date for receipt of completed application forms will be September 22, 1983.

(15282)

## Assistant Scientific Officers LONDON

Two Assistant Scientific Officers are required by the Home Office.

1. To undertake the duties of a computer system operator, for the Scientific Research and Development Branch, in connection with the development of prison security.

The successful applicant should ideally have a flair for operating micro computers and be willing to travel to some prisons and explain techniques to prison staff. He/she may also be involved in data collection.

2. To provide scientific and systems programming, for the Research and Planning Unit, in support of the Unit's Research and Development work. To carry out day to day operation of the Unit's DEC VAX 11/700 computer, involving maintenance of tape and disc drives.

Salary starts at £4,215 (age 16) - £5,797 (age 21 or over) rising to £7,264 per annum (including inner London Weighting). Assistant Scientific Officers are encouraged to take advantage of the facilities for obtaining qualifications. Prospects exist for promotion to Scientific Officer and above. Annual leave is 22 working days plus 10½ public and privilege holidays.

The minimum qualifications are four passes in GCE 'O' level (grade A, B or C), or equivalent, including English Language, and a mathematics or science subject, or ONC, or equivalent. Registered disabled persons will also be considered.

Applicants should apply in writing, to: Mr. P. Haughton, Home Office, Scientific Research and Development Branch, Room 437, Horseferry House, Dean's Street, London SW1P 2AW. Completed application forms should be returned by 12.9.83.

(16235)

### DEPARTMENT OF COMPUTING SERVICES

The central Computing Service has three vacancies to support the Polytechnic's use of computers. The major machine is a DEC 20/60, although there are several PDP11s also used in the academic field.

### CHIEF APPLICATIONS PROGRAMMER

£29,945-£32,087

To lead the Applications Programming group in the implementation and development of software packages to support the academic disciplines of the Polytechnic. Experience in any of the major languages (e.g. FORTRAN, PASCAL, BASIC) and the major packages (e.g. SPSS, PAFC, NAG, GENESYS, OINO-FI) is useful.

### SYSTEMS PROGRAMMER

£25,640-£28,712

To join the Systems group in the support of overlay of operating systems (e.g. RSX11-M) and data communications network. Proficiency in low-level language is desirable.

### PROGRAMMER (ADMINISTRATION)

£25,640-£28,712

To join the Administrative Computing group. The group's main task will be the development of on-line systems on a recently ordered IBM S/36 covering all aspects of the Polytechnic's administration. COBOL and RPG III experience with a commercial or higher education administration background is desirable.

Further details and form of application available from the Staff Officer, Trent Polytechnic, Saxon Street, Nottingham NG1 4BU. Closing date: September 21, 1983.

(2474)

**TRENT POLYTECHNIC NOTTINGHAM**

(16236)

## City of London Senior Shift Leader

Salary range £8921-£9817

(inclusive of London Allowance and 14% shift pay)

Applications are invited for the above post to lead an operating team working a five-day, two-shift rota at the Guildhall. Specific responsibilities include design and maintenance of operating procedures, liaising with technical and engineering staff as necessary. The Corporation runs an ICL 2956 computer with an expanding communications network (including an ME29 configuration) running TP, VME/B and DME3 (George 2). Plans to convert or replace remaining DME systems will lead to a demanding but rewarding role for those with this initiative.

Applicants must have extensive operating experience on ICL computers, most of which should be on S series 2800. A sound knowledge of DME3 (George 2) and VME/B is expected, together with written and verbal communication skills.

The Corporation of London offers generous holiday entitlement, season ticket loan, canteen and bar facilities and a variety of sports and social activities.

Applications in own handwriting giving full CV details, together with the names and addresses of two referees to:

The Computer Operations Manager  
Chamber of London  
P.O. Box 270  
Guildhall, London EC2P 2EJ

(16261)

## UNIVERSITY COLLEGE LONDON AND LH FERMENTATION Teaching Company Associate

### SOFTWARE DEVELOPMENT

The Department of Chemical and Biochemical Engineering has gained approval from the Science and Engineering Research Council and the Department of Trade and Industry to establish a Teaching Company program. This is a two-year project in conjunction with LH Fermentation, to design and develop software for the control and analysis of fermentation processes. No knowledge of fermentation is necessary. Approximately 60% of the Associate's time will be spent at LH Fermentation and the post is expected to lead to an accelerated career development with the company. Salary commensurate with experience.

Applications are invited from candidates, aged under 30, with a good honours degree in an appropriate discipline. Applicants should send a full curriculum vitae to: Dr. N. M. Fish, Department of Chemical and Biochemical Engineering, University College London, Taviton Place, London WC1E 7JE.

(16260)

## POLYTECHNIC OF THE SOUTH BANK Borough Road, London SE1 0AA

### COMPUTER SERVICES DEPARTMENT

#### Application Programmer (2 posts)

Salary up to £9,258 per annum inclusive of London Allowance (Ref. C513).

Vacancies have arisen within the Computer Services Department for two Programmers in the User Support team to install software packages, develop new software, amend existing software and contribute to the programming advisory service offered to students and staff.

The persons appointed will be of graduate level with a minimum of two years' programming experience in at least two languages. Experience of DEC 10 or VAX systems would be an advantage.

Application forms and further particulars of these posts are available from the Staffing Office. Tel. 01-928 8988, Ext. 2256.

Closing date for receipt of completed application forms will be October 6, 1983.

(16261)

## UNIVERSITY OF ESSEX Department of Electrical Engineering Science Lecturer Software and Information Systems

Applications are invited for this above post (salary £2,100-£2,120) for appointment from October 1st, 1983, to support teaching in the M.Sc. course in Software and Information Systems. The postholder will be responsible for teaching and research in the M.Sc. course, and will be expected to contribute to the efforts of an existing research group in the area of software and information systems. The postholder will be expected to contribute to the graduate programme and to undergraduate teaching.

Further particulars may be obtained from the Head of Department, University of Essex, Wivenhoe Park, Colchester CO4 3SQ, to whom applications, together with a list of publications and the names and addresses of two referees, should be submitted by September 25, 1983.

(16234)

## BOX NUMBERS

Box number replies should be addressed to:

Box Number  
c/o Computer Weekly  
Quadrant House, The Quadrant  
Sutton, Surrey SM2 5AS

(16261)

## WELSH JOINT EDUCATION COMMITTEE CYD-BWYLLGOR ADDYSG CYMRU

### COMPUTER PROGRAMMER

Salary Scale £4,628-28,284 - £8,712

Applications are invited for the new post of COMPUTER PROGRAMMER in the Computer section of the Welsh Joint Education Committee. The Committee uses an ICL ME29 running an on-line examination system and the person appointed will assist the Computer Officer in both development and maintenance programming work. Applicants should have had 2 years experience and should preferably have had 2 years experience of working in COBOL and/or an ICL ME29, and to undergraduate teaching.

Further details and application forms (to be returned by 21 September, 1983) may be obtained from the Secretary, Welsh Joint Education Committee, 240 Western Avenue, Cardiff CF5 2YX.

J. L. Brace

Secretary

(16231)

# CTR

Computer  
Technology  
Recruitment  
Limited

For ambitious software experts the project which takes DBMS technology to new and complex horizons is already in its first stages of development within the UK. The kind of people we're really interested in will already be aware of this major step forward in computing, and they'll be eager to apply their expertise. As one of the leading contributors to the introduction of the compiler and its language support environment our client Software Sciences Limited can obviously offer you considerable involvement during the challenging four year + programme. Afterwards, there are many other diverse areas into which you can extend your skills in worldwide projects, ranging from commerce to civil aviation.

Forming the central component of the ADA/APSE project the DBMS provides both an intellectual and practical challenge, stimulating to those software specialists who can match our demands for technical excellence and who are seeking to develop their careers in a dynamic environment.

Your experience will have involved adopting or writing operating systems or DBMS. You'll understand high level languages such as PASCAL, ALGOL 68 or Ada and you'll have a minimum of 3 years general software experience. Depending on the extent of this background, and its bias, you could join them in one of the following areas:

Technical Consultant (£14K-£18K+)

Software Designer (£10.5K-£14K)

Programmer (£12K).

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The massive resources of one of the world's most respected computer systems manufacturers have been re-organized for a substantial boost to increase market share in the IBM data communications field.

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Normally only training and probation fees, within this organization, are demanded to be so vital that they have an incentive to happen.

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Applications are invited from persons living in the London and South East Region.

For an immediate interview contact Tony McGrath on 01-637 9611 or alternatively send your c.v. for consideration to Management and Executive Selection, Suite 201/208 Albany House, 324 Regent Street, London, W1.

## MANAGEMENT & EXECUTIVE SELECTION

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# Data Processing Manager

£13,000

Our Client has had a long association with Oxford and has grown considerably over the last century. Now part of a large American Corporation, the Company is one of Oxford's major employers.

The Company manufactures a quality range of specialist products which are highly respected in their field and a recent extension to the product range will ensure that the Company remains ahead of its rivals in a very competitive marketplace.

Central to the Company's operations is an IBM System 34 which is linked via satellite to a dual IBM mainframe configuration at Group Headquarters in the USA. The System 34 may be replaced in due course to provide additional processing capacity.

The ideal applicant for this potentially rewarding position, will be a mature, self-motivated individual, who enjoys the challenge of working in a manufacturing/

Oxford

engineering environment - someone who has the capability to relate accurately to the needs of Line Managers, the ability to develop a small, young D.P. Department and a desire to become an integral member of a forward thinking management team. Knowledge of COBOL and RPG II is highly desirable.

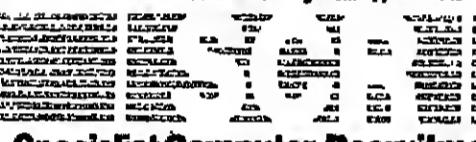
The position carries an excellent range of benefits which include an attractive starting salary, negotiable in the region of £13,000, a comprehensive relocation package, contributory pension and free life assurance schemes, 25 days annual holiday and free family BUPA cover.

Suitably qualified candidates should forward a detailed CV to Ian Payne, Supervising Consultant at the SCR Birmingham office as soon as possible.

Interviews will be carried out at SCR regional offices during early September.

1670

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Motorola is a major multinational company known throughout the electronics and computer industries as a developer and manufacturer of high technology products. Our rapid expansion into the office automation and distributive data processing segment of the industry has created career opportunities, details of which are as follows:

## HARDWARE SUPPORT ENGINEERS

The successful candidates will have a proven track record as hardware support engineers with a minimum of six years' experience with communications, distributive data processing and office automation products. The ability to develop current and future customer credibility is essential. Interest in or previous experience with high level programming languages will enhance prospects and potential for future advancement. HNC, HND are preferred qualifications but not essential.

In the product management segment of our division we are also seeking:

## PRODUCT MANAGER — 16 BIT PRODUCTS

We seek an experienced 8-16 bit products manager. The successful candidate will have a proven record as a product marketer in the office automation equipment arena. Initially required to launch and promote a new line of microprocessor-based office systems.

## MARKET ANALYSTS

Expected to perform in-depth European market and competitive analysis of all segments of the distributive data and office automation equipment market. Additional responsibilities will include consolidation of information for our various product marketing functions, publication of reports and participation in regular briefing sessions.

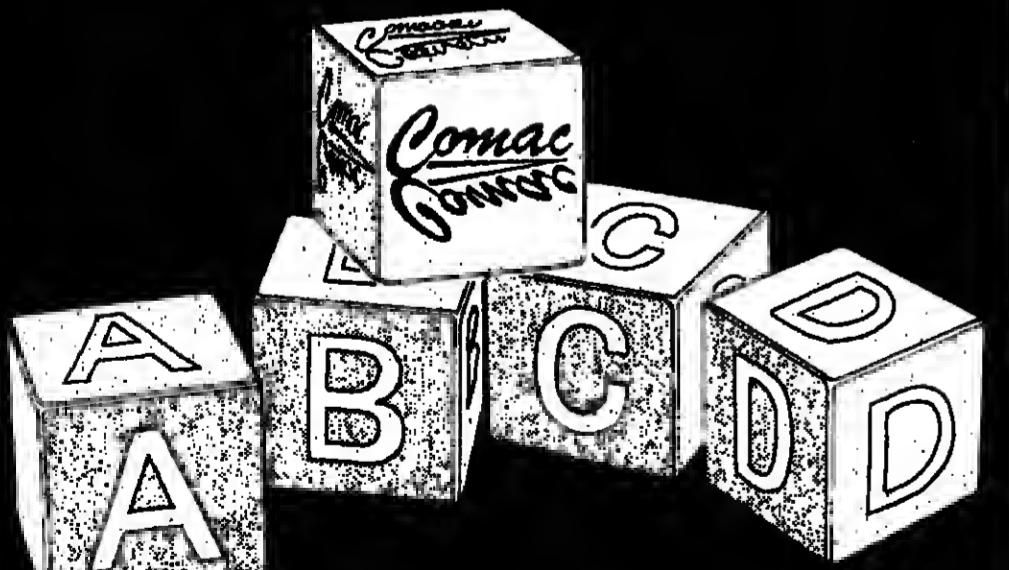
## VERTICAL MARKET APPLICATIONS

We seek a proven performer who has previous experience in the OEM/reeller market and the marketing of applications packages. The successful candidate will be responsible for the analysis of vertical and horizontal market opportunities. Additional responsibilities will include assisting with the reeller program and assisting product management functions.

The above posts carry attractive salaries plus free life assurance, private health cover, non-contributory pension scheme, 20 days' annual holiday.

Please forward your curriculum vitae without delay to: Miss S. J. Sewerin, Sec/PA to Managing Director, Codex (UK) Limited, Motorola Limited, Information Systems Group, 114/116 Thornton Road, Thornton Heath, Surrey CR4 8XB. Tel: 01-689 2101.

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Programmers

In addition the following contractors are required for IMMEDIATE starts:

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## DP opportunities in Saudi Arabia

Arab National Bank, one of the leading Banks in Saudi Arabia, having in excess of 60 branches, is involved in a comprehensive computerization plan. Implementation of a computer network based on VAX 11/ PDP 11 is underway. Following positions are open in the DP Directorate:

Experience in VAX/VMS, RSX11/M, DECNET and TUTOR is necessary. Knowledge of Arabic is an advantage.

Arab National Bank, offers excellent salaries contingent upon experience (14 month salaries per year) and attractive benefits package including: Furnished accommodation (or equivalent 4 month salary), Medical Care and ticket to the point of contract for applicant and his family.

Qualified applicants are urged to respond by sending resume and salary history (with copies of qualifications and experience history) in confidence to George Shaw.

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## Senior Systems Analyst

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This is a genuine career opportunity within one of the country's best known retail organisations for an individual with three years' or more systems experience. Initially you will be responsible for a major systems upgrade, later moving onto important new projects developing sales and distribution systems. You should have seen at least one major project through to implementation, and should have a sound knowledge of data and an IBM environment. Ref. L.J.2

## Software Support

£11K

Southern England

Do you have at least five years' experience in real-time programming? With knowledge of X25 communications, 8086/8, UNIX, BCPL, or PL/M you could be working for one of the world's most successful companies at the sharp end of technology. The company is always prepared to offer commitment to its staff and its customers. Ref. W.C.3

## Analysts — move into project leading £10K-£12K

Surrey

We need a lead analyst with a minimum of five years' experience gained in an ICL 1900 environment to join a major insurance company.

You will have responsibility for a small team of programmers and analysts working on the development of projects dealing with premium, accounting, troubleshooting analysis and system enhancements. Insurance experience is desirable but not essential. This position offers variety and challenge coupled with the opportunity to develop a good career path in a stable well established organisation. Ref. W.C.4

## DEC/Programmers

to £11K

London

Would you like to work for the most successful consultancy in the world? Just two years' basic 16 bit programming experience on DEC 11/70/34 will interest this company. They need confident, capable people who are technically sound and want to develop their career rapidly.

Abilities in areas of client liaison and support are essential as you will be based on clients premises for the greater part of those major development projects. Ref. S.H.5

## Career minded Analyst/Programmers c.£10,500

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If you are an enthusiastic programmer/analyst looking for a career path through analysis, design - into project management, this could be the opportunity you've been waiting for. A leading manufacturing company is seeking an individual to join a small project team involved in the analysis, design and development of major on-line and batch systems. Two years' IBM COBOL experience is essential, knowledge of database would be advantageous. Ref. L.J.6

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# Computer Weekly

Thursday, September 1, 1983

## Scottish firm cracks communication poser

by Claire Gooding  
A SMALL Scottish company claims to have cracked the problem of micro-mini-mainframe communication, which has been vexing the software majors.

Aberdeen-based MOM Systems has produced a cheap system which, it says, will do the things that MSA, Informatics, Cullinet, ADR, McCormack and Dodge, Cincom and others have been struggling with for months.

The firm will be marketing its solution, called ABLE, for £295.

The package has been in use for over a year in 50 companies, including BP, Total and engineering firm Howard Doris. It has been used to link various machines including Univac, DEC Vax, IBM, Prime and Data General with St-

rius, Comart and IBM micros. MOM is aiming the product at installations that have a hotch-potch of hardware unable to communicate except through specific applications.

ABLE handles asynchronous communications, transferring complete files between, for example, an IBM micro and a Univac mainframe. At present the micro used to run ABLE has to support the CP/M operating system, although MOM is planning other implementations, such as MS-DOS.

"Most systems suppliers encourage users to buy family of products, which are able to communicate only with one another," said MOM director Colin Balchin. "ABLE breaks the mould of

providing a genus of products and makes it possible to have a patchwork quilt."

"Any micro user can have a 'window' on other machines — there are other communications programs, but none as generalised as this."

MOM has just clinched a deal with French oil firm Total for £600,000 worth of business based on ABLE, to be used in the North Alwyn project. Various microsoftware packages, including dBase II database, Wordstar word processing and Supercalc spreadsheet, are linked through Comart micros to the ABLE package, and from there to a Prime 2250 running the Vision project control software.

"When we'd cracked certain key

applications, we realised we'd made a breakthrough in technology," said Balchin.

The ABLE software was written by Jim Duncan, of Granite Cliffs, a micro dealer which is now a subsidiary of the MOM group.

Although MOM has initially failed to interest IBM in its technology, it is planning to sell the ABLE software to the US. Manufacturers including Comart and database supplier Condor are evaluating ABLE with a view to incorporating it into their own products.

As well as selling ABLE to be "bundled", MOM is planning to sell the software stand-alone through dealers and end user agents. First on the list are existing IBM, Sirius and Comart dealers.

Robots may become mechanical craftsmen.

## Robots poised to become craftsmen

by Rory Johnstone

INDUSTRIAL robots could be turned into craftsmen as a result of

research at a UK polytechnic.

Dr John Billingsley of Portsmouth Polytechnic last week told the annual meeting of the British Association for the Advancement of Science of his moves to develop robots that will go beyond simple assembly work to experiment at work, evaluating what they are producing.

He also proposed that simple vision systems, working as he said, "like a blind man's stick", could greatly extend the power of robot to cope when things go wrong.

Billingsley's current work is on producing heat regulators for cookers. At the moment his robots are able to test the regulators heating them and then make adjustments until they are according to specification.

Mr Micro denied that the game was in breach of copyright. "It was based on the 'Hunchback of Notre Dame', " said a spokeswoman for the company. "It was a business decision to withdraw the product. We'd rather devote our time to writing good software."

According to Mr Micro, the two companies had signed an agreement that made no specific reference to breach of copyright. But the company did admit to being aware of the existence of the Century game called Hunch Back while developing its own version.

However, Century's managing director, Dave Jones, described Mr Micro's claim that there was no breach of copyright as "absolute codswallop".

"We decided to nip it in the bud before they went into production."

Meanwhile creditors of Information and Technology Computer Services are determined to put the company into liquidation and get someone to see if there are any assets to be recovered.

At the same time there were delays with the introduction of enhancements.

Wheeler said the company was in the black as far as assets were concerned, but those assets could

be used to pay off debts.

The company has now subsequently stopped taking orders, as its debts and assets are estimated to be in a range of £2-3 million.

The London-based company

## Lotus will sell MSA 1-2-3

by George Black

LOTUS Development of Massachusetts has reached an agreement with MSA to sell its best selling integrated micro spreadsheet 1-2-3 as part of its IBM mainframe-personal computer link.

The worldwide deal means software giant MSA will become a value-added reseller for the package of spreadsheet, graphics and database management system. But MSA will only be marketing the product to customers who also buy its mainframe software.

These will be able to get 1-2-3 for \$500 in MSA's Executive Packpack — a system that will allow IBM-PC users to download data from the mainframe via the Packpack software jointly devised by MSA and its micro subsidiary Packtree.

Lotus still has to consider how to sell 1-2-3 in this country as a standalone product and to this end is setting up a London office this week.

The 1-2-3 product was the brainchild of Visicorp's Mitchell Kapor, who set up Lotus in April 1982 backed by \$5 million. The system has sold 60,000 copies this year, and is used by major US financial institutions such as Arthur Andersen and Merrill Lynch. Until now, however, it has made little impact outside the US.

Apple hosts software development meeting

by George Black

APPLE is to host a software development conference in London next month for 200 delegates to unveil plans for what is now dubbed the \$6000 range.

Steve Wozniak, who wrote the Apple II software, will be joined by Lisa designer Larry Tesler and Steve Jobs, co-founder of Apple.

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The London-based company

## Full order book fails to save Grundy business

by John Riley

GRUNDY Business Systems is going into liquidation, despite a full order book for its Newbury portable microcomputer. Directors of the UK manufacturer last week called a creditors' meeting for September 8. Around 30 jobs will be lost.

Another UK portable computer manufacturer, Information and Technology Computer Services, is also on the point of liquidation. It leaves a string of creditors across the computer industry claiming they have been owed big sums for some months. The creditors are asking how the firm spent the £300,000 capital it claimed to have in March.

Grundy's troubles stem from an "over-optimistic" view of the market, according to Tony Wheeler, financial director of sister company Grundy Electronics.

He said there was "insatiable demand" for the firm's products in the second half of 1982, so the company overstocked on components. But sales unexpectedly declined. At the same time there were delays with the introduction of enhancements.

Wheeler said the company was in the black as far as assets were concerned, but those assets could

be used to pay off debts.

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The London-based company

## Copyright dispute is settled

by Philip Hunter

A COPYRIGHT dispute between two Lancashire-based video game makers ended last week with the smaller company, Mr Micro, bowing to the superior financial muscle of Century Electronics.

Mr Micro swiftly agreed to withdraw its game, Hunchy, from the market and to destroy all copies and artwork. This was within one week of being accused of breach of copyright by Century Electronics, one of the Europe's largest makers of arcade games.

Mr Micro denied that the game was in breach of copyright. "It was based on the 'Hunchback of Notre Dame', " said a spokeswoman for the company. "It was a business decision to withdraw the product. We'd rather devote our time to writing good software."

According to Mr Micro, the two companies had signed an agreement that made no specific reference to breach of copyright. But the company did admit to being aware of the existence of the Century game called Hunch Back while developing its own version.

However, Century's managing director, Dave Jones, described Mr Micro's claim that there was no breach of copyright as "absolute codswallop".

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Robots may become mechanical craftsmen.

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